REMARKS

Applicants appreciate the thoroughness with which the Examiner has examined the above-identified application. Reconsideration is requested in view of the amendments above and the remarks below.

Initially, applicant notes that the Examiner has not indicated any examination or made any rejection of claim 4. If this claim is to be rejected, applicant assumes that the Examiner

Applicant has amended claim 1 to recite that the claimed steel wire has a structure of a martensite base and carbides precipitated therefrom. As originally recited, the percent spheroidization of carbides not less than 30%. Support for the amendment is found in the specification, particularly in paragraphs 0030 and 0037. No new matter is added.

The present invention provides, with no conventional spheroidization annealing, a quenched and tempered steel wire having the composition, tensile strength and microstructure defined in claim 1 which enables manufacture of a desired product with superior cold forging characteristics. As described in the specification, particularly in paragraph 0043, the claimed steel wire is obtained by the process of "heating to a temperature of Ac3 [A_3] transformation points or higher," "cool[ing] with water," and tempering by "heating temperature and time [] adjusted in the range of 200°C to Ac1 [A_1] transformation points." As now defined in claim 1, the steel wire produced by the process has a structure of martensite base with spheroidized carbide, with the percent spheroidization of carbides not less than 30%.

Rejection under 35 USC § 102

Claims 1 and 3 stand rejected under 35 USC § 102 as being anticipated by JP 09-067622. Applicant respectfully traverses this rejection.

JP 09-067622 discloses a process for non-heat treated steel wire having low variation in tensile strength and lowered deformation resistance in cold forging. Unlike the present invention, JP '622 discloses a hot rolled and drawn wire that does not teach the production of a martensitic base structure with spheroidized carbides as applicant claims. While the structure of the wire produced in JP '622 is not specified, it is believed to be a ferrite/pearlite microstructure, and not martensite, in view of the composition of the wire and the process conditions described in the specification. For the benefit of the Examiner, applicant encloses herewith well-known metallurgical dictionary definitions of the terms "martensite" and "pearlite" to illustrate the differences therebetween.

Accordingly, since the present invention wire contains a structure with a martensite base and carbides precipitated therefrom, and JP '622 does not disclose or suggest such a structure, claim 1 is not anticipated by the JP '622 reference.

Rejection under 35 USC § 103

Claims 1 and 3 stand rejected under 35 USC § 103 as being obvious from Ochi et al. U.S. Patent No. 5,252,153 or Nakagawa et al. U.S. Patent No. 3,666,572. Claim 2 stands rejected under 35 USC § 103 as being obvious from Ochi or Nakagawa or JP 09-067622. Applicant respectfully traverses this rejection.

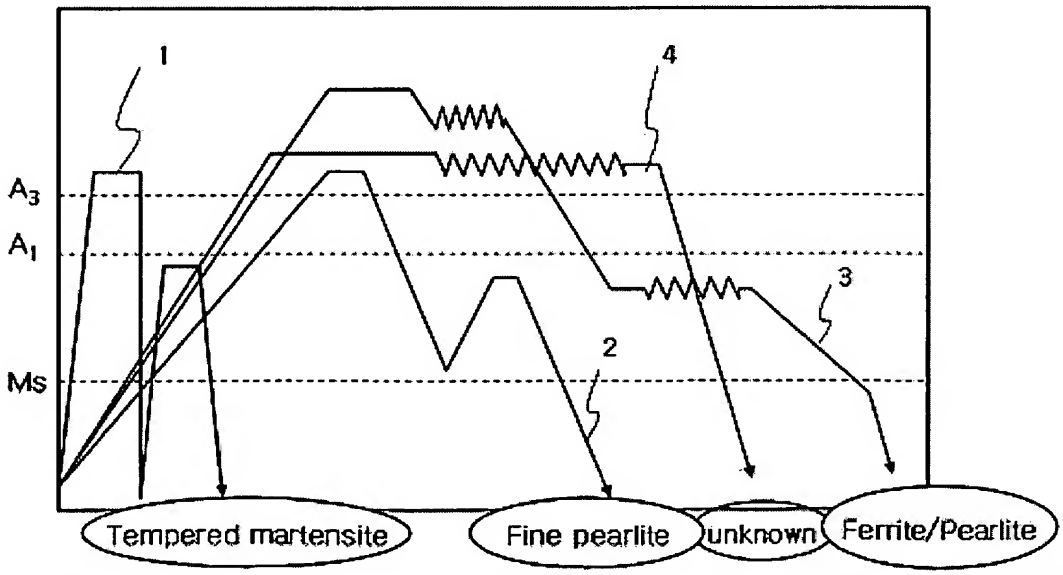
Ochi discloses a process for continuous heat treatment of low alloy steel which improves reduction of area in drawing of wire rod without requiring an additional intermediate heat treatment for removing any work hardening effect. The Ochi patent

discloses that the steel bar wire rod has a pearlitic base structure with some spheroidization of the carbides. See column 3, lines 10-15, 24-3141-64. The heating and rolling treatment produce no martensitic base structure, as in applicant's claimed invention.

The Nakagawa patent relates to a hot rolling process for a steel bar wire rod being performed prior to conventional spheroidization annealing for providing an improved softening level, which facilitates a subsequent cold working. Nakagawa discloses that the steel wire is initially cooled to produce a structure of pro-eutectoid cementite/pearlite or fine pearlite (column 3, lines 16-23) before spheroidizing. Again, Nakagawa discloses no martensitic base in the microstructure of his steel wire.

JP '622, as discussed above, discloses or suggests no martensitic base in its microstructure, and is believed to have a ferrite/pearlite microstructure.

The differences between the present invention and prior art references may be more clearly appreciated by the following Time-Temperature Curves showing heat treatment by the present invention and references:

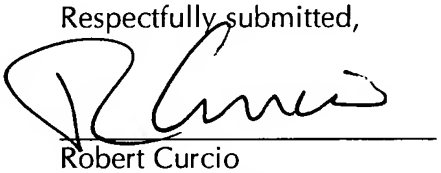


1. Present Invention 2. Nakagawa et al. Patent 3. Ochi et al. Patent 4. JP 09-67622

As shown above, the present invention shows a considerable difference compared to the prior art with respect to purpose and processing, and as a result has a different structure as well. Since none of the cited references suggests a processing or heat treatment that provides a martensite base in a steel wire microstructure which also includes spheroidized carbides, these references cannot render the present invention obvious to one of ordinary skill in the art.

It is respectfully submitted that the application has now been brought into a condition where allowance of the entire case is proper. Reconsideration and issuance of a notice of allowance are respectfully solicited.

Respectfully submitted,



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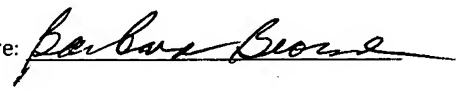
Name: Barbara Browne Date: July 24, 2006 Signature: 

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